CERVASEK, Jiri; KUTKA, Jan

Effect of neutron irradiation on some mechanical and structural properties of austenitic chrome-nickel steels. Jaderna energie 9 no.11: 342-346 '63.

1. Ustav jaderneho vyzkumu, Ceskoslovenska akademie ved, Rez.

Country : Czechoslovakia
Category : Human and Animal Physiology, Internal Medicine

Abs. Jour. : Ref Zhur Biol, No. 2, 1959, No. 8280

Author : Podoba J.; Kutka M., Licko V.
Institut. : --
Title : Radioactive Iodine in the Diagnosis of Thyroid Disease.

Orig. Pub. : Bratisl. Lekar. listy, 1958, L, No. 7, 393--400

Abstract : no abstract

Card: 1/1

KUTKA, Mikulas

Rate of thyroxine disappearance in thyrotoxicosis measured by means of radioactive thyroxine. Endokr. pol. 13 no.1:55-58 '62.

1. Endocrinological Institute of the Slovak Academy of Sciences, Bratislava Director: MUDr J. Podoba, C.Sc.
(HYPERTHYROIDISM metab) (THYROXIN metab)

KUTKA, M.

Radioiodine test from the viewpoint of iodine kinetics in the body.
Bratisl. lek. listy 42 no.4:226-233 '62.

1. Z Endokrinologickeho ustavu Slovenskej akademie vied v Bratislave, riaditel MUDr. J. Podoba, C.Sc.

(IODINE radioactive) (THYROID GLAND physiol)

PODOBA, J.; NEMETH, S.; STUKOVSKY, R.; KUTKA, M.

Etiologic and preventive problems in endemic thyropathies in Slovakia. Bratisl. lek. listy 42 no.6:323-329 '62.

1. Z Endokrinologickeho ustavu SAV v Bratislave, riaditel MUDr. J. Podoba, C. Sc.

(GOITER epidemiol)

KUTKA, M.; LICKO, V.

A critique of modern thyroid function tests. Bratisl. lek. listy 42 no.6:334-340 '62.

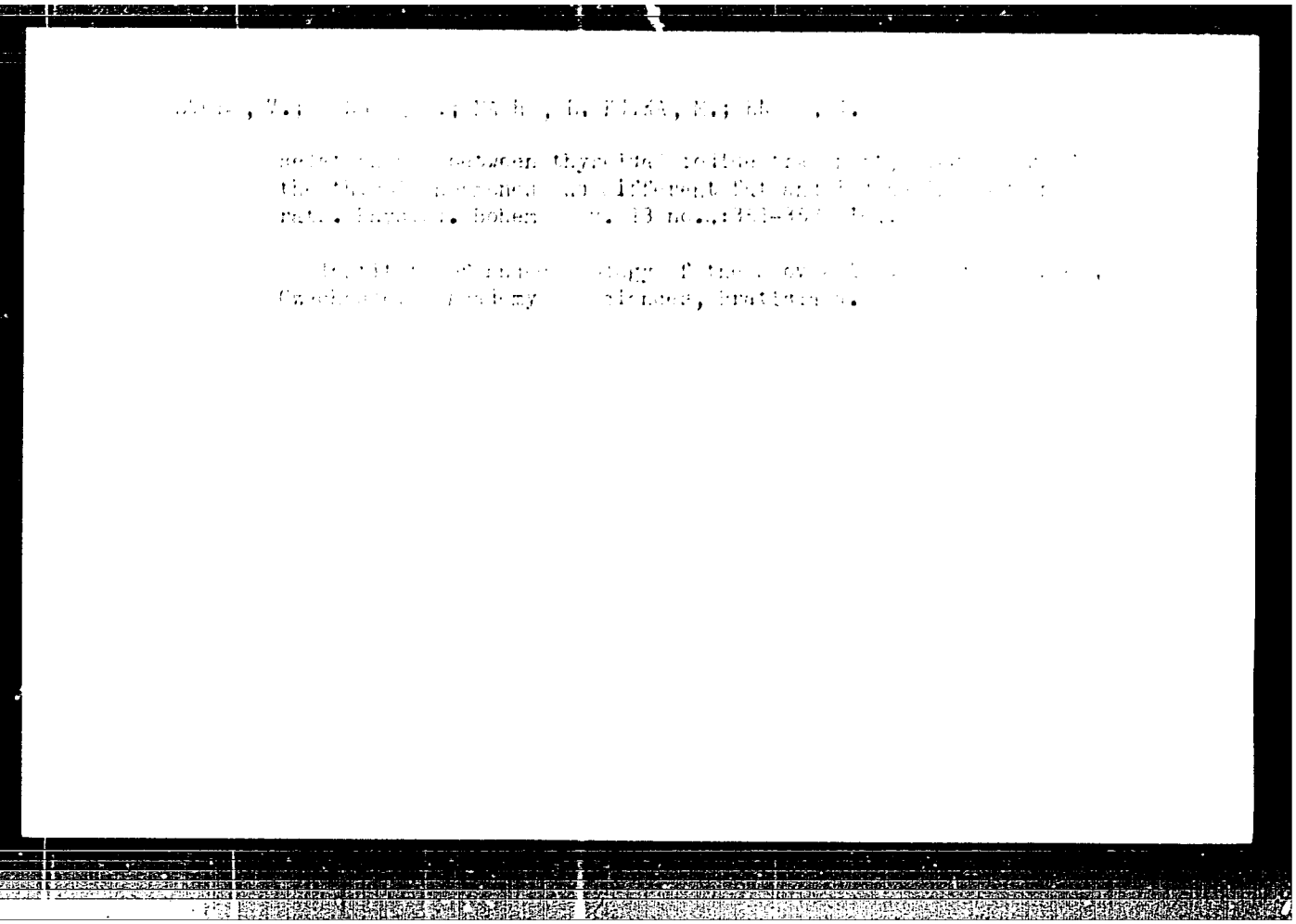
1. Z Endokrinologickeho ustavu SAV v Bratislave, riaditel MUDr. J. Podoba, C. Sc.

(THYROID GLAND physiol)

[illegible], V.; [illegible], I.; LENGER, P.; MEYER, M.; [illegible], J.; [illegible], J.

Resorption of hormonal iodine by the thyroid, the amount of iodine in the organism and other parameters of iodine metabolism in rats after different amounts of fat and iodine. Experientia, Switz. 13 no.4:349-350 '64.

1. Institute of Endocrinology of the Slovak Academy of Sciences, Czechoslovak Academy of Sciences, Bratislava.



[illegible], M.; [illegible] M. [illegible]

Components of the [illegible]. [illegible].
13 no.6:571-578 '64

1. Institute of Immunology, [illegible] Academy of Medical Sciences, Pavlodar and Institute of Pediatrics [illegible] Academy of Medical Sciences, Kiev.

HOCMAN, Gabriel; LICKO, Vojtech; KUTKA, Mikulas; JANSCAKOVA, Matilda; SEVCIK, Peter

Automatic determination of the ratio of radioiodine to protein bound radioactive iodine compounds by separation on the Sephadex gel column. Chem listy 58 no.[illegible]-579 My '64.

1. Institute of Endocrinology, Slovak Academy of Sciences, Bratislava.

KUTKA, M.; SEIPREBEIE, L.

Renography -- kidney function testing with radioisotopes. Bratisl. lek. listy 45 no. 10:598-609 31 My'65.

1. Endokrinologicky ustav Slovenskej akademie vied v Bratislave (riaditel : MUDr. J. Podoba, CSc.) a Istituto di Patologia Medica dell'Universita v Rime (riaditel: prof. dr. Cataldo Cassano).

[illegible], A.; [illegible], M.

Evaluation of the distribution of radioactivity in the spleen after the administration of radiochromium Cr51-tagged erythrocytes. (Preliminary report). Bratisl. lek. listy 45 no.7:407-416 15 O '65.

1. Katedra internej mediciny I v Bratislave (veduci prof. MUDr. M. Ondrejicka) a Endokrinologicky ustav Slovenskej akademie vied v Bratislave (riaditel MUDr. J. Podoba, CSc.).

KUTKA, M.

CZECHOSLOVAKIA

[illegible], Dr; KUTKA, Mg STUKOVSKY, E

Institute of Endocrinology, Slovak Academy of Sciences (Endokrinologicky ustav Slovenskej akademie), Bratislava - (for all)

Bratislava, Bratislavske lekarske listy, No 1, January 1966, pp 3-8

"Residual goiter in regions protected by iodized salt."

[illegible], Mikulas; MAIER, Stefan

Changes in iodine kinetics caused by thyroid disorders.
Endokr. Pol. 16 no.5:493-504 '65.

1. Slovak Academy of Sciences, Institute of Endocrinology, Bratislava (Director: MUDr. J. Fedoba C.Sc.).

L 34240-66 0915 2547

ACC NR: AF6024805 SOURCE CODE: CZ/0049/66/000/003/0219/0234

AUTHOR: Szarka, Stefan (Graduate physicist; Bratislava); Kutka, Mikulas (Doctor of medicine; Candidate of sciences; Bratislava)

ORG: [Szarka] Department of Numerical Mathematics, Faculty of Natural Sciences, Comenius University, Bratislava (Katedra numerickej matematiky Prirodovedeckej fakulty Univerzity Komenskeho); [Kutka] Endocrinological Institute, Slovak Academy of Scien , Bratislava (Endokrinologicky ustav Slovenskej akademie vied)

TITLE: ...dy of kidney functions from the aspect of hippuran kinetics in the organism by means of an analog computer

SOURCE: Biologia, no. 3, 1966, 219-234

TOPIC TAGS: genitourinary system, analog computer, biologic computer, mathematic model

ABSTRACT: The applications of analog computers in biology are discussed. The use and the solution of differential equations in biological problems are reviewed. Solution of differential equations on an analog computer is described. A mathematical model of the kinetics of radiohippuran in the organism and its solution by an analog computer are presented. Theoretical curves and experimetally obtained renograms are compared. Orig. art. has: 19 figures and 16 formulas. [JPRS: 35,814]

SUB CODE: 06, 09 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 010

Card 1/1

CZECHOSLOVAKIA

KUTKA, M.; SZARKA, S.; SKUTIL, V.; Department of Endocrinology, Slovak Academy of Sciences (Endokrinologicky ustav SAV), Faculty of Natural Sciences of Comenius University in Bratislava (Prirodovedecka fakulta UK, Bratislava), and Regional Tuberculosis Hospital (Krajska nemocnica tuberkulozy), Podunajske Biskupice.

"Analysis of Nephrograms from the Standpoint of Radiohippuran Kinetics."

Prague, Ceskoslovenska Fysiologie, Vol 14, No 5, Oct 1965; p 354-355.

Abstract: Computer analysis of kinetics of excretion and secretion of single doses of radiopaque agent was found to give data on function which correlated quite closely with the type of pathological condition of the kidney. Formula, 1 Czech reference. Paper presented at the 15th Physiology Days, Olomouc, 28 May 65.

1/1

KUTKEVICHUS, S. I.

KUTKEVICHUS, S. I. -- "Investigation of the Products of Interaction of Ethyl Chlorohydrin and Aromatic Amines." Min Higher Education USSR. Moscow Order of Lenin Chemicotechnological Inst Imeni D. I. Mendeleyev. Moscow, 1955. (Dissertation for the Degree of Candidate of Chemical Sciences)

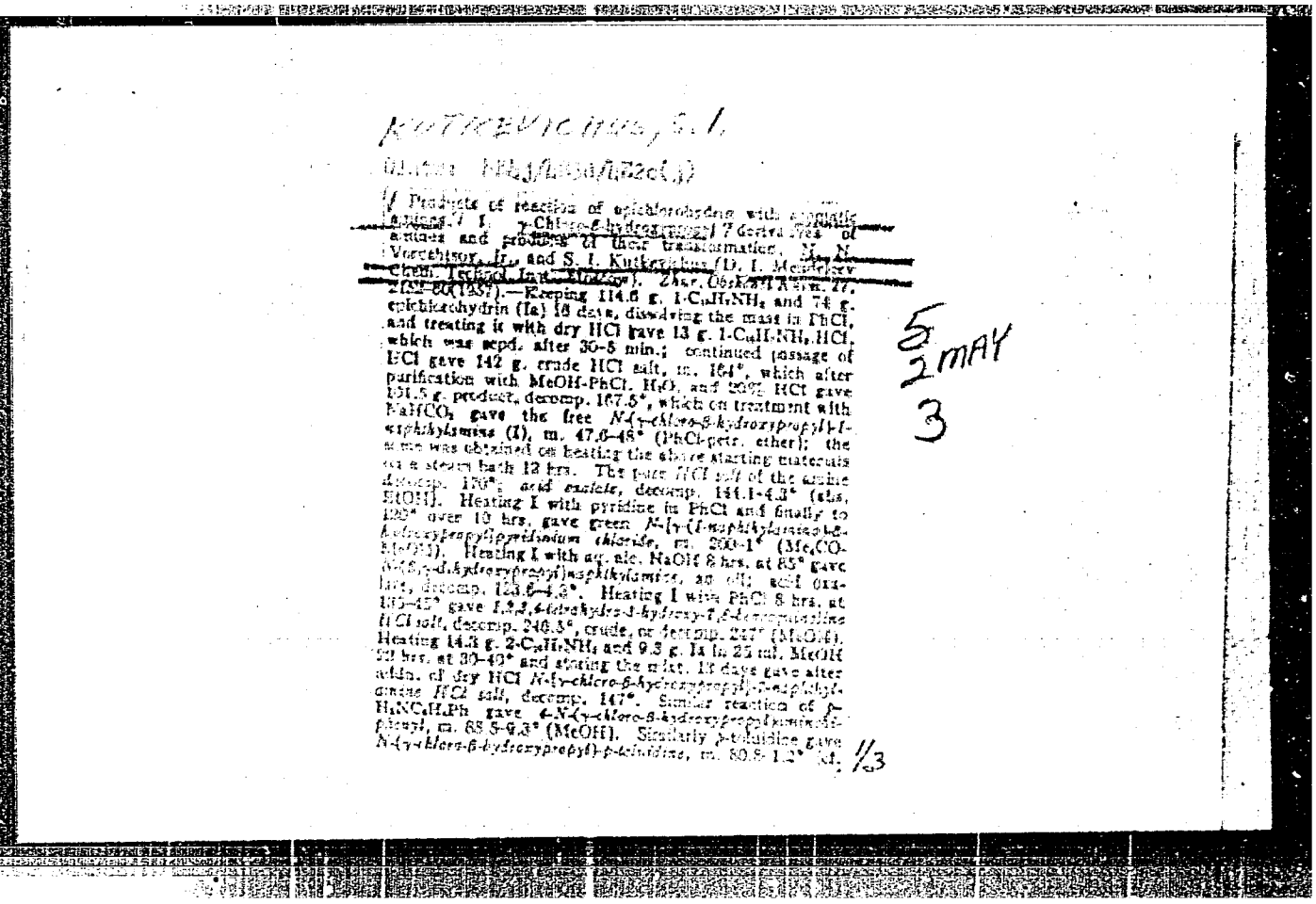
SO: Knizhnaya Letopis', No 1, 1956, pp 122-123, 124

Kurkovskaya, S. I.

Distr: 4E4j/4E2c(j)/4E3d

Some reactions of 3-hydroxy-1,2,3,4-tetrahydrobenzoquinolines. N. N. Vorozhtsov, Jr., and S. I. Kurkovskaya (D. I. Mendeleev Inst. Chem. Technol., Moscow). *Khim. Nauka i Prom.* 2, 133–4 (1957).—When 3-hydroxy-1,2,3,4-tetrahydro-7,8-benzoquinoline (I) is heated in a sealed tube with HCl 7,8-benzoquinoline and 1,2,3,4-tetrahydro-7,8-benzoquinoline are produced (yield 60%). Heating of 3-hydroxy-1,2,3,4-tetrahydro-5,6-benzoquinoline (II) yields 5,6-benzoquinoline and 1,2,3,4-tetrahydro-5,6-benzoquinoline. When I is heated with an excess of boiling thionyl chloride (III) 6-chloro-7,8-benzoquinoline is obtained in 80% yield. II heated with III yields 5,6-benzoquinoline in 70% yield.

V. S. Mihajlan



Products of reaction of epichlorohydrin with aromatic amines. I. γ-Chloro-β-hydroxypropyl derivatives of amines and products of their transformation. V. N. Vorozhtsov, Jr., and S. I. Kutkevichus (D. I. Mendeleev Chem. Technol. Inst., Moscow). Zhur. Obshchei Khim. 27, 2027-30(1957).—Keeping 114.6 g. 1-$C_{10}H_7NH_2$ and 74 g. epichlorohydrin (Ia) 10 days, dissolving the mass in PhCl, and treating it with dry HCl gave 13 g. 1-$C_{10}H_7NH_2$.HCl, which was sepd. after 30–5 min.; continued passage of HCl gave 142 g. crude HCl salt, m. 164°, which after purification with MeOH-PhCl, H_2O, and conc. HCl gave 151.5 g. product, decomp. 167.5°, which on treatment with $NaHCO_3$ gave the free *N-(γ-chloro-β-hydroxypropyl)-1-naphthylamine* (I), m. 47.6–48° (PhCl-pet. ether); the same was obtained on heating the above starting materials on a steam bath 12 hrs. The pure *HCl salt* of the amine decomp. 170°; *acid oxalate*, decomp. 144.1–4.3° (abs. EtOH). Heating I with pyridine in PhCl and finally to 120° over 10 hrs. gave green *N-[γ-(1-naphthylamino)-β-hydroxypropyl]pyridinium chloride*, m. 200–1° (Me$_2$CO-EtOH). Heating I with aq. alc. NaOH 8 hrs. at 85° gave *N-(β,γ-dihydroxypropyl)naphthylamine*, an oil; acid oxalate, decomp. 123.6–4.3°. Heating I with PhCl 8 hrs. at 105–45° gave *1,2,3,4-tetrahydro-3-hydroxy-7,8-benzomorpholine HCl salt*, decomp. 240.3°, crude, or free base, 207° (MeOH). Heating 14.3 g. 2-$C_{10}H_7NH_2$ and 9.3 g. Ia in 25 ml. MeOH 50 hrs. at 30–40° and storing the mixt. 10 days gave after addn. of dry HCl *N-(γ-chloro-β-hydroxypropyl)-2-naphthylamine HCl salt*, decomp. 147°. Similar reaction of *p*-$H_2NC_6H_4Ph$ gave *4-N-(γ-chloro-β-hydroxypropylamino)-biphenyl*, m. 88.5–9.3° (MeOH). Similarly *p*-toluidine gave *N-(γ-chloro-β-hydroxypropyl)-p-toluidine*, m. 80.8–1.2°.

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N. N. Vorozhtsov, Jr.

Cohn, *et al.*, *Chem. Ber.* **37**, 3304(1904). Reaction of appropriate amines with 4 moles Ia and treatment of the products with HCl gave the following *HCl salts* of *N,N-bis(γ-chloro-β-hydroxypropyl)amines* (amine given): *p-chloroaniline*, 85%, m. 187.5°; *m-aminophenol*, 83%, m. 203°; *1-C$_{10}$H$_7$NH$_2$*, 70%, m. 177°; *2-C$_{10}$H$_7$NH$_2$*, 42%, m. 167°. Heating *p*-MeC$_6$H$_4$NH$_2$ (10.7 g.) and 37 g. Ia 8 days and heating 9 hrs. at 150° gave after HCl treatment *3,9-dichloro-6-methylphiladine*, m. 168–9.5°; HCl salt, decomp. 198° (MeOH). Heating 0.1 mole *p*-H$_2$NC$_6$H$_4$Ph with 0.4 mole Ia 61 hrs. at 50° gave 23 g. *β-hydroxypropylaminophenol*, m. 115.2–15.8° (MeOH), which heated in EtCl 18 hrs. at 150° gave *3,9-dichloro-6-phenylphiladine*, m. 160.1–1.1°; HCl salt, decomp. 295°. Heating crude *1-N,N-bis(γ-chloro-β-hydroxypropyl)naphthylamine* with powd. NaOH in Et$_2$O 6 hrs. gave *N,N-bis(γ-chloro-β-hydroxypropyl)-1-naphthylamine*, b$_4$ 180–90°; *HCl salt*, decomp. 176°, prepd. by passage of HCl into the base, turned out to be that of the γ-chloro-β-hydroxy deriv. described above. Heating 0.1 mole 1-ethylaminonaphthalene HCl salt and 0.3 mole Ia 42 hrs. at 80° gave after concn. and treatment with HCl *N-ethyl-N-(γ-chloro-β-hydroxypro-*

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VOROZHTSOV, N.N.; KUTKEVICHUS, S.I.

Epichlorohydrin and aromatic amine reaction products. Part 2: 1,2,3,4-tetrahydro-3- oxy-7,8-benzoquinoline. Zhur. ob. khim. 27 no.9:2521-2525 S '57. (MIRA 11:3)

1.Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.

(Benzoquinoline)

AUTHORS: Vorozhtsov, N. N., Ml., SOV/79-28-10-12/60
Kutkevichus, S. I.

TITLE: Investigation of the Reaction Products Epichlorohydrin With Aromatic Amines (Issledovaniye produktov vzaimodeystviya epikhlorgidrina s aromaticheskimi aminami)
III. Action of Hydrochloric Acid and Thionyl Chloride on 3-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on 3-Oxy-1,2,3,4-Tetrahydro-5,6-Benzoquinoline (III. Deystviye solyanoy kisloty i khloristogo tionila na 3-oksi-1,2,3,4-tetragidro-7,8-benzokhinolin i na 3-oksi-1,2,3,4-tetragidro-5,6-benzokhinolin)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2682-2687 (USSR)

ABSTRACT: The investigation of the action of hydrochloric acid and of thionyl chloride on 3-oxy-1,2,3,4-tetrahydro-7,8-benzoquinoline (I)(Ref 1) was carried out in order to substitute the hydroxyl group by chlorine, which, however, failed. On heating (I) with hydrochloric acid at 170-200° under pressure, a mixture was obtained that consisted of two bases containing no halogen. One of the bases was a 7,8-benzoquinolin (III)(m.p. 44°), and

Card 1/3

Investigation of the Reaction Products [illegible] Epichlorohydrin With Aromatic Amines. [illegible] Action of Hydrochloric Acid and Thionyl Chloride on 5-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on 5-Oxy-1,2,3,4-Tetrahydro-5,6-Benzoquinoline

the other was its derivative (IV)(17-21%). The transformation apparently begins with the separation of one molecule of water under the formation of one 1,2- or 1,4-dihydro derivative of benzoquinoline (II) which disproportionates into benzoquinoline (III) and its tetrahydro derivative (IV)(Scheme 1). Hydrochloric acid acts in the same way on 5-oxy-1,2,3,4-tetrahydro-5,6-benzoquinoline (V). Compounds (VI) and (VII)(Scheme 2) are formed in the same quantities. With the action of thionyl chloride on the 5-oxy-1,2,3,4-tetrahydro derivatives of the benzoquinolines results were obtained that had not been expected at all. On a heating of (I) with thionyl chloride a chlorine-containing base was obtained that had the formula $C_{13}H_8NCl$. A compound of the same composition with the same melting point was also obtained by Polish chemists (ref 4) (VIII). Their synthesis was repeated. It was found that, as with the mixture of the picrates obtained, the mixed sample of the compound obtained does not show any decrease of the melting point with 6-chloro-7,8-benzoquinoline. There are

Card 2/3

Investigation of the Reaction Products Epichlorohydrin With Aromatic Amines. III. Action of Hydrochloric Acid and Thionyl Chloride on 3-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on 3-Oxy-1,2,3,4-Tetrahydro-5,6-Benzoquinoline

SOV/79-28-10-12/60

10 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleyeva
(Moscow Chemical Technological Institute imeni D. I. Mendeleyev)

SUBMITTED: August 7, 1957

Card 3/3

PHASE I BOOK EXPLOITATION SOV/4[illegible]

Sovremennyye problemy khimii prirodnykh soyedineniy: piridina i khinolina. Riga, 1967

Khimiya, tekhnologiya i primeneniye proizvodnykh piridina i khinolina; materialy seveshchaniya (Chemistry, Technology and Utilization of Pyridine and Quinoline Derivatives; Materials of the Conference) Riga, Zinatne AN Latviyskoy SSR, 1968. 339 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agencies: Akademiya nauk Latviyskoy SSR. Institut khimii. Vsesoyuznoye khimicheskoye obshchestvo.

Ed.: S. Bakhanova; Tech. Ed.: A. Klyavina; Editorial Board: Yu. A. Banovskiy, Candidate of Chemistry, E. Y. Vanags, Candidate of Chemistry (Resp. Ed.); E. P. Zalmanzon, Doctor of Chemistry, and M. M. Kalnyn'.

PURPOSE: This book is intended for organic chemists and chemical engineers.

COVERAGE: The collection contains 33 articles on methods of synthesizing or producing pyridine, quinoline, and their derivatives from natural sources. No personalities are mentioned. Figures, tables, and references accompany the articles.

Yermakova, A. P., and S. S. Kaverzneva. [Moscow City Pedagogical Institute imeni V. P. Potemkin]. Use of Chemical Reagents in Qualitative Analysis. Report 1. Some Reactions of 8-Hydroxyquinoline 229

Filimonov, V. T. [Chernovitskiy gosudarstvennyy universitet (Chernovtsy State University)]. The Interaction of N-Acyl-1-Alkoxy-1-Chloroalkanes with Some Quaternary Salts of Heterocyclic Compounds 237

Yelifanov, N. S., L. I. Lukashina, and S. L. Dmitriyev [All-Union Scientific Research Institute for Synthesis of Pesticides and Dyes, Ministry of the Chemical Industry, USSR]. Cyanoacetal and Cyanoacetyl Derivatives of Some Nitrogen-Containing Heterocyclic Compounds 243

IV. USE OF DERIVATIVES OF THE QUINOLINE SERIES IN ANALYTICAL CHEMISTRY

Zinovskaya, Ye. I. [Kostroskoy sel'skokhozyaystvennyy institut (Kostroma Agricultural Institute)]. The Use of 8-Hydroxyquinoline in Chemical Analysis 249

Banovskiy, Yu. A., A. P. Arzimanov, and V. I. Kuznetsov [Chemical Institute of the Academy of Sciences Latvijskaya SSR]. 6-Nitroquinoline (Thionine) as an Analytical Reagent 271

Nikolayev, S. F. [All-Union Scientific Research Institute for Chemical Reagents]. Studies in the Synthesis of 1,10-Phenanthroline 283

Bakeyev, A. K., and N. N. Tananayev. [Gyumri State Pedagogical Institute imeni T. G. Shevchenko]. Study of Complex Formation in the System: Metal Ion - Hydroxide (Sulfide) - Organic Base 289

S/081/62/000/023/038/120
B166/B101

AUTHORS: Zdanavicius, J., Purenas, A., Kutkevicius, S.

TITLE: 6-(isonitroso and amino)-1,2,3,4-tetrahydro-7,8-benzoquinolines and their transformation

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1962, 288, abstract 23Zh213 (Tr. Kaunassk. politekhn. in-ta, v. 14, no. 4, 1961, 11-20 [Lith.; summary in Russ.])

TEXT: Under the action of mineral acids N-nitroso-1,2,3,4-tetrahydro-7,8-benzoquinoline is transformed into 6-isonitroso-1,2,3,4-tetrahydro-7,8-benzoquinoline (I), yield 78.6%. The properties of I were studied and its structure established. Catalytic reduction of I leads to 6-amino-1,2,3,4-tetrahydro-7,8-benzoquinoline (II). A number of II derivatives were produced, they included an azo dye and also 1,6-tri-(β-chlorethyl)-amino-1,2,3,4-tetrahydro-7,8-benzoquinoline which is assumed to be biologically active. When II is acted on by benzoyl chloride in an ether medium only the primary NH_2 group is blocked by a C_6H_5CO radical. When, however, II is acted on by C_6H_5COCl in pyridine all the H atoms in both NH_2 groups are replaced

Card 1/2

S/081/62/000/023/038/120
6-(isonitroso and amino)-1,2,3,4-... B166/B101

by a C_6H_5CO radical. [Abstracter's note: Complete translation.]

Card 2/2

L 7892-66 EWT(m)/EPF(c)/EWP(j)/T/EWA(c) RPL JW/RM

ACC NR: AP5024960 SOURCE CODE: UR/0286/65/000/016/0021/0021

AUTHORS: Kutkevichus, S. I.; Lakshtauskas, Yu. I.; Rutkauskas, S. I.

ORG: none

TITLE: Method for dyeing natural and chemical fibers. Class 8, No. 173708

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 21

TOPIC TAGS: dyeing, fiber, natural fiber, synthetic fiber, diazotization, amine, epoxide

ABSTRACT: This Author Certificate presents a method for dyeing natural and synthetic fibers by modifying them with epoxy derivatives of aromatic amines and subsequent development by diazotization. To widen the assortment of modifiers, the o - β, γ - epoxy propyl derivatives of aromatic amines are used as modifiers. To speed up the dyeing process, the modification of fibers is carried out at high temperatures up to 200C.

SUB CODE: 11,07/ SUBM DATE: 21Jun63

nw

Card 1/1 UDC: 677.842.313.23:841.15:547.233

HACKEL, Juliusz; URBANSKI, Tadeusz; KUTKIEWICZ, Wieslaw; STERNINSKI, Andrzej

Viscosity of mixtures HNO_3-H_2SO_4-H_2O. Chemia stosow 4 no.3/4:441-451 '60. (EEAI 10:9)

1. Katedra Technologii Chemicznej II Politechniki Warszawakiej.

(Viscosity) (Mixtures) (Nitric acid) (Sulfuric acid) (Water)

[illegible], Rudolf; KUTNIEWICZ, Mirosław, [illegible], Juliusz

Peracetic acid; studies on obtaining. [illegible]. Przem chem 42
no.10:551-556 O'63.

1. Politechnika, Warszawa.

MYL'NIKOV, B.N., khimik; KUTKIN, F.A., khimik; Prinimala uchastiye MINAYEVA, L.M., laborant

Emulsion treatment of flannel. Tekst.prom. 20 no.4:52-53 Jl '60. (MIRA 13:8)

1. Laboratoriya kombinata "Trekhgornaya manufaktura" imeni Dzerzhinskogo.
(Textile finishing) (Textile chemistry)

S/081/62/000/009/040/075
B166/B101

AUTHOR: Mutain, F. A.

TITLE: A chemical method of descaling digester preheaters

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1962, 356, abstract 9I210 (Tekstil'n. prom-st', no. 9, 1961, 74-75)

TEXT: It was established that the scale in preheaters can effectively be dissolved by the use of 6% HCl containing a corrosion inhibitor (urotropine). If the deposits contain a large amount of silicates (~ 20% SiO_2) the descaling is done with HCl (6%) containing 20 g/l NaF or NH_4F at a temperature of 20-30°C. The descaling operation is described technically. [Abstracter's note: Complete translation.]

Card 1/1

S/126/61/012/005/015/028
E091/E335

AUTHORS: Finkel', V.M. and Kutkin, I.A.

TITLE: Investigation of crack propagation in steel

PERIODICAL: Fizika metallov i metallovedeniye, v. 12, no. 5, 1961, 732 - 739

TEXT: The method and results of a study of crack propagation in metals under impact loading is reported. High-speed cine-photography was used, in which exposures of up to 4800 frames/sec could be achieved. Incisions were made along metallic plates, 250 x 100 x 7 mm, which enabled even ductile metals such as low carbon steel to be tested for impact resistance. Each specimen was placed, incision upwards, on a T-shaped rest. The latter was placed on a massive support. A striker was positioned at the end of the plate. The load falling from various heights delivered an impact to the striker and a crack propagated itself along the incision of the plate. Weights of between 16 and 90 kg were used and the height was varied from 0.5 - 4 m. The cine-camera was placed horizontally and exposures were made through a mirror inclined at an angle of 45°. The specimen was illuminated

Card 1/3

Investigation of ....

in the incision by two powerful illuminators, one of which gave out a coloured beam across a recess in the striker. The instant of impact was registered on the film when the falling load made contact with the striker, by flashing an impulse bulb, which made a dark background on the frame. Destruction was spread over 2 - 64 frames, depending on the speed of the latter and the conditions of mechanical testing. Specimens of the steel 35XГ2 (35KhG2) with round incisions were studied. The following factors were considered: 1) influence of the weight of the load; 2) influence of preliminary deformation and 3) influence of temperature on the kinetics of the process of destruction. It was found that the rate of crack propagation varied greatly, reaching 1 500 m/sec. Crack-propagation was intermittent, with stops in between. Destruction is preceded by temporary retardation during which plastic deformation of the specimen takes place. The students I. Voronov, V. Gurariy and A. Savel'yeva participated in the work. Acknowledgments are expressed to Professor Yu.V. Grdina for his interest in the work.

Card 2/3

Investigation of ....

There are 5 figures, 1 table and 23 references: 12 Soviet-bloc (one a Russian translation of a non-Soviet publication) and 11 non-Soviet-bloc. The four latest English-language references mentioned are: Ref. 2: D.G. Christie - Trans. Soc. Glass Techn., 1952, 36; Ref. 5: T.E. Edgerston, F E Barstow - Amer.Ceram. Soc., 1941, 24, no. 7, 131; Ref. 8: A.M. Breche, C.J. White - J. Appl. Phys., 1959, 27, no. 9, 980; Ref. 9: T. Sakurai -JIndustr. Explos.Soc., Japan, 1958, 19, no. 3, 181.

ASSOCIATION: Sibirskiy metallurgicheskiy institut
(Siberian Metallurgical Institute)

SUBMITTED: January 9, 1961

Card 3/3

S/139/62/000/001/030/032
E073/E535

15-2150

AUTHORS: Finkel', V.M. and Kutkin, I. A.

TITLE: Study of the kinetics of the growth of cracks in glass

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.1, 1962, 173-174

TEXT: A number of authors have found that the speed of increase of a brittle crack may reach 0.6 times the speed of transverse waves. In this paper the results are given of investigations of the process of brittle fracture taking place at relatively low speeds. The results were obtained on 18 x 24 mm plates of photographic glass, in the centre of which a 30 to 50 mm crack was produced artificially. The process was photographed by means of a high-speed cine-camera at a rate of 3500-4800 frames/sec. Depending on the type of impact applied, the propagating crack could be seen on 7 to 600 frames. Three series of tests were made, in one the speed of fall of the load remained constant at 0.9 m/sec and the load was varied, in the second the kinetic energy of the falling loads was maintained

Card 1/3

constant, in the third the quantity of motion remained constant. In the first series the most characteristic feature was the propagation of the crack at the minimum stress of 0.3 kg/mm^2; it was nonuniform and jumo-like and varied between 0 and 250 m/sec. The highest recorded speed, at 10 kg/mm^2, exceeded 300 m/sec, which is five to six times slower than speed values published by other authors. Of great interest is the fact that whilst in thin glass the speed of crack propagation was small, in thick (5 to 8 mm) glass, the crack propagation was much faster (reaching 800 to 1000 m/sec). The second and third series of tests confirmed relations revealed in the first series of tests. During these, the highest recorded speeds of crack propagation were 240, 270 and 300 m/sec, respectively. Of great interest is the ability of the cracks to stop growing for a long time and then suddenly to grow again. Usually, if the loads are large enough, the crack propagation stopped for durations of the order of 0.2 to 0.4 x 10^{-5} sec, whilst short duration stoppages in crack propagation can be attributed also to factors other than nonuniformity of the material (for instance,

interference of elastic waves), long duration stoppages can be attributed exclusively to nonuniformities in the glass.

ASSOCIATION: Sibirskiy metallurgicheskiy institut imeni S. Ordzhonikidze
(Siberian Metallurgical Institute imeni S. Ordzhonikidze)

SUBMITTED: October 19, 1960 (initially)
May 16, 1961 (after revision)

4

15.2120

S/181/62/004/006/003/051
B108/B104

AUTHORS: Finkel', V. M., and Kutkin, I. A.

TITLE: Growth of cracks in glass under dynamic load

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1412-1418

TEXT: The development of cracks in glass due to impact and explosion was studied. Bending stress was applied to the specimens, after which a charge was detonated in the middle of one of their surfaces. The development of the cracks was high-speed-filmed (4,500-240,000 pictures per second). The maximum speed of crack propagation (up to 3,300 m/sec) rises with the load applied to the specimen but becomes constant when the loading exceeds 1.5 kg/mm^2. The propagation of the cracks is not steady but by sudden jumps. Some degree of reversibility was observed in the cracks under static and dynamic deformation, this being due to the opening and closing of the surface of "leader" cracks. A delay in the rupture of the specimens was detected varying between 0 and $360 \cdot 10^{-5}$ sec and dependent on whether incipient cracks were present or not. There are 5 figures and

Card 1/2

S/181/62/004/006/003/051
B108/B104

Growth of cracks in glass under ...

1 table.

ASSOCIATION: Sibirskiy metallurgicheskiy institut im. S. Ordzhonikidze, Novokuznetsk (Siberian Metallurgical Institute imeni S. Ordzhonikidze, Novokuznetsk)

SUBMITTED: August 8, 1961 (initially)
November 28, 1961 (after revision)

Card 2/2

S/126/62/013/001/010/018
E091/E580

18.1110

AUTHORS: Finkel', V.M. and Kutkin, I.A.

TITLE: Propagation of cracks in carbon steels

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.1, 1962, 114-121

TEXT: In the authors' previous paper, the growth of cracks during the dynamic bending of steel 35ХГС (35KhGS) was studied by high-speed cinematography. In the present paper, the kinetics of the destruction of a number of carbon steels is discussed. For the quantitative analysis of the plastic deformation associated with crack growth, thin strips of paper were stuck on to normal specimens, parallel to the end face, at intervals of 10 mm, and the angle of bend of each cross-section was measured on the film frames from these marks, using a measuring microscope with an accuracy of 20'. In order to increase the photogeneity of the cracks, the base of the notch was treated with 40% HNO_3. On low carbon steels of low etchability carbon black was applied with a spirit lamp. The steels СТ.3 (ST.3), СТ.25 (ST.25), СТ.35 (ST.35), СТ.50 (ST.50), СТ.65Г (ST.65G) and СТ.У-8А (STU-8A) were tested

Card 1/2

with various notch shapes. For studying crack growth for various stress systems, the notch shape was varied from round to sharp triangular, except for steels St.3 and St.25 which did not fail with round notches, and were, therefore, tested only with triangular ones. The tests were carried out at room temperature, by dropping a load of 25 kg from a height of 2 m. The working section of all specimens, independent of notch shape, was 2.4 - 2.5 mm. It was found that on impact bending of notched plates, plastic deformation is propagated in the form of waves at a speed depending on the degree of deformation from 20 m/sec to [illegible] m/sec and above. A retardation of plastic deformation of 20 - 100.10^{-5} sec was observed, depending on the type of steel. In all steels investigated, retardation of failure takes place. The latter sometimes attains 380.10^{-5} sec, and decreases with increasing notch sharpness. There are 6 figures and 2 tables.

ASSOCIATION: Sibirskiy metallurgicheskiy institut im.S.Ordzhonikidze
(Siberian Metallurgical Institute imeni S. Ordzhonikidze)

SUBMITTED: January 16, 1961 (initially)
March 27, 1961 (after revision)
Card 2/2

S/126/62/014/002/010/010
E193/E383

AUTHORS: Finkel', V.M. and Antkin, I.A.

TITLE: Study of the kinetics of fracture of high-carbon steels in tension

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 2, 1962, 259 - 266

TEXT: The object of the present investigation was to establish how fast was the rate of propagation of cracks in steels under a tensile stress. The experimental work was conducted on high-carbon steels ШХ15 (ShKh15) and 65Г (65G), in both the hardened and normalized condition. Tensile loads of up to 7.. kg/mm^2 were applied to thin, flat test pieces and the crack was initiated, in each experiment, by detonating the explosive charge attached at the edge and in the centre of the gauge length of the test piece. The detonator was synchronized with an illuminating system and a high-speed cine-camera capable of operating at speeds of 120 000 to 240 000 frames/sec. Typical results obtained on quenched specimens of steel ShKh15 are

Card 1/3

Study of the kinetics of ....

reproduced in Fig. 4, where the length of the crack (L, mm) is plotted against time (t x 10^6 sec), curves 1-7 relating to specimens fractured under the applied stresses of 66, [illegible], 18.7 and 15.2 kg/mm^2. It will be seen that the rate of propagation of cracks increased with increasing magnitude of the applied stress, the maximum value observed being about 3 000 m/sec. It was found, however, that even under these conditions the process of fracture retained its intermittent (steplike) character. Each stage of the propagation of [illegible] in the quenched steel was preceded by a period during which the distribution of stresses and the concentration at the root of the crack took place. There are 6 figures.

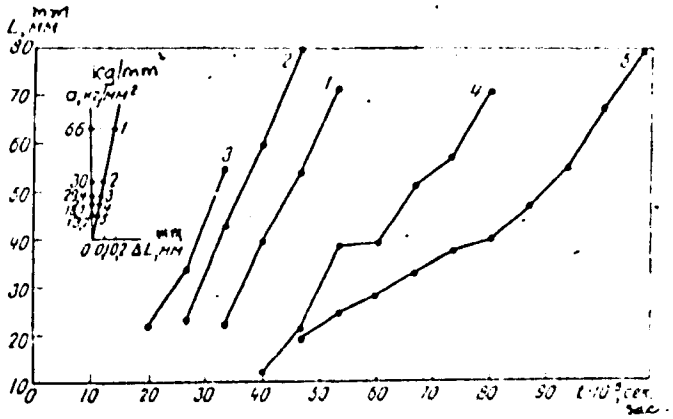
ASSOCIATION: Sibirskiy metallurgicheskiy institut im. S. Ordzhonikidze (Siberian Metallurgical Institute im. S. Ordzhonikidze)

SUBMITTED: September 27, 1961

Card 2/3

Study of the Kinetics of ....

Fig. 4:



Card 3/3

S/126/62/014/005/010/015
E111/E435

AUTHORS: Finkel', V.M., Kutkin, I.A.

TITLE: Influence of test temperature and heat treatment on crack growth in certain steels

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.5, 1962, 775-778

TEXT: The authors' previous work was on loss of strength of various untreated steels notched in various ways when tested at room temperature. They have considered it interesting to study the effect of temperature and heat treatment on fracture kinetics and primarily crack propagation. In one series of experiments they investigated 280 x 100 x 8(10) mm metal specimens with arrested natural cracks and those with artificial cracks. In the second series high-speed photography was used on plexiglass specimens geometrically equivalent to the metal ones. It was found that crack growth on the notch surface reflects closely the movement of a main crack in the core of the specimen. The effect of temperature (+100 to -70°C) was studied on type-50 steel: with falling temperature less deformation is needed for a crack to appear and grow. Unlike the kinetics of the fracture process

Influence of test ...

itself the ductility characteristics of the metal change regularly with changing temperature. The effect of heat treatment was studied on types [illegible]15 (ShKh15), 65G (65G) and 50 steels. The delay to failure was found to rise considerably with rising tempering temperature (100 to 700°C). The speed of the plastic wave was highest in hardened specimens and decreased with tempering; tempering also affected the kinetics of crack movement: as they flew through the air the fragments of both heat treated and untreated specimens straightened out, performing in the process a complicated series of oscillations. There are 3 figures and 1 table.

ASSOCIATION: Sibirskiy metallurgicheskiy institut
(Siberian Metallurgical Institute)

SUBMITTED: December 27, 1961

Card 2/2

32817
S/020/62/142/001/014/021
B104/B102

15.2610

AUTHORS: Finkel', V. M., and Kutkin, I. A.

TITLE: Destruction of high-strength hard glass

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 1, 1962, 75-76

TEXT: The destruction of hard glass by a metal bar shot onto the glass was photographed with a high-speed motion-picture camera (120,000 frames per sec). A set of pulse tubes was the light source. The front of destruction formed by a great number of cracks has a spherical shape around the impact center. The distinct crack ramifications produce porous granulation. The distances between radial cracks vary during their development. In the first stages, these distances are equal to the cell dimensions after destruction. The grains appearing after destruction are formed by tangential cracks developing from the radial cracks. Most of the grains are formed during the development of radial and tangential cracks. A minor part of them is formed at a later stage of destruction. The rate of propagation of the destruction front is constant and amounts to 1700 m/sec. There are 2 figures and 6 references: 3 Soviet and 3 non-

Card 1/2

Destruction of high-strength ...

Soviet. The two references to English-language publications read as follows: D. G. Christie, Trans. Soc. Glass Techn., 24, no. 7, 131 (1947); H. E. Edgerton, E. E. Barstow, J. Am. Ceram. Soc., 24, no. 7, 131 (1941).

ASSOCIATION: Sibirskiy metallurgicheskiy institut im. S. Ordzhonikidze (Siberian Metallurgical Institute imeni S. Ordzhonikidze)

PRESENTED: June 17, 1961, by P. A. Rebinder, Academician

SUBMITTED: June 16, 1961

Card 2/2

S/020/62/143/001/017/030
B104/B108

AUTHORS: Finkel', V. M., and Kutkin, I. A.

TITLE: Reversibility of cracks in glass

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 90-91

TEXT: After cutting optical glass with a diamond, cracks of 20-60 mm length were produced by slight impacts. During static bending of the glass specimens, some of the cracks quickly became longer. After the load was removed, the visible cracks again assumed their original length. Traces of the crack elongation can then no longer be observed. Similar observations are also made during dynamic bending of glass. The cracks do not disappear completely, as they develop again in the same direction under dynamic bending. These effects are explained by a partial recovery of the binding forces between the crack surfaces or by distances between the crack faces which are smaller than 5000 Å. P. A. Rebinder (Yubileynyy sbornik, posvyashchennyy 30-letiyu Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii, 1, Izd. AN SSSR, 1947, p. 33; Vestn. AN SSSR, 10, no. 6, 9 (1940)) Poniziteli tverdosti v burenii, Izd. AN SSSR, (1944), and I. V. Obreimov

Card 1/2

Reversibility of cracks in glass

(Proc. Roy. Soc., 127 (A), 290 (1930)) are mentioned. There are 2 figures and 10 references: 8 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: A. A. Griffith, Phil. Trans. Roy. Soc., A 221, 163, 1920; I. V. Obreimov, Proc. Roy. Soc., 127 A, 290 (1930).

ASSOCIATION: Sibirskiy metallurgicheskiy institut im. S. Ordzhonikidze
(Siberian Metallurgical Institute imeni S. Ordzhonikidze)

PRESENTED: June 17, 1961, by P. A. Rebinder, Academician

SUBMITTED: May 21, 1961

Card 2/2

ACCESSION NR: AR4034479 S/0058/64/000/003/E046/E046

SOURCE: Ref. zh. Fiz., Abs. 3E353

AUTHOR: Finkel', V. M.; Kutkin, I. A.

TITLE: Propagation of cracks in some single crystals

CITED SOURCE: Dokl. VI Nauchn. konferentsii Novokuznetskogo ped. in-ta po fiz.-matem. naukam. Novokuznetsk, 1963, 124-126

TOPIC TAGS: crystal failure, crack propagation, crack speed, surface fault, microinterferometry, x ray study, high speed cinematography study, surface groove, surface jog, cleavage plane, plastic deformation

TRANSLATION: High speed motion picture, x-ray, and interference methods were used to study the dependence of plastic deformation in the fault surface on the rate of motion of a crack in single crystals

Card 1/2

ACCESSION NR: AR4034479

of NaCl, KCl, KBr, and LiF. The rate of propagation of the crack can vary over a wide range, from 100 to 1400--1500 m/sec. A micro-interferometric investigation of the fault surface has shown the formation of not only large grooves but of a complicated system of jogs, and with increasing velocity the jogs increase in density and become curved. An x-ray investigation using a two-crystal spectrometer shows a decrease in the disorientation and a decrease in the plastic deformation with increasing crack speed. The relief of the damage surface is due, in the author's opinion, to the transition of the crack from one cleavage plane to others at increasing fault rates, or to the presence of surface waves. S. Shil'shteyn.

DATE ACQ: 10Apr64 SUB CODE: PH ENCL: 00

Card 2/2

ACCESSION NR: AR4036260 S/0137/64/000/003/I038/I038

SOURCE: Referativnyy zhurnal. Metallurgiya, Abs. 3I227

AUTHOR: Finkel', V. M.; Kutkin, I. A.

TITLE: Simultaneous growth and branching of many cracks in glass, stalinite, and hardened steel

CITED SOURCE: Dokl. VI Nauchn. konferentsii Novokuznetskogo ped. in-ta po fiz.-matem. naukam. Novokuznetsk, 1963, 127-128

TOPIC TAGS: Glass cracking, stalinite cracking, hardened steel cracking, crack propagation, cracking velocity

TRANSLATION: Photographic glass was crushed by the impact of a falling load via a hammer block; the movement of several cracks arising simultaneously was studied by means of an SKS-1 motion picture camera at film speeds of 4500-4800 m/sec. The time of the failure lag was found to be 300 x 10^{-5} sec. It is characteristic that the cracks propagated in a discontinuous manner, and the velocity changed from 0 to

Card 1/3

600-700 m/sec; the velocity change for most of the cracks of the bundle occurred simultaneously. When photographic glass previously loaded statically in accordance with the pure-bend mode was crushed by the burst of an electric detonator via a steel rod, the simultaneous generation of many cracks was observed either immediately under the hammer block or at the edge of the glass, as a result of the reflection of the pressure impulse with a changed sign. The filming was done with an SFR-1 camera at a speed of 120,000 frames per sec. The velocities of the cracks were different and could differ by as much as one order of magnitude in adjacent cracks. Nevertheless, consistent changes in velocity were noted for all the cracks. In hardened samples of 85KhV steel subjected to rupture with a tester, the cracks were initiated by an explosion and recorded with the SFR-1 camera at a speed of 240,000 frames per sec. Usually, two cracks emerged from the break zone, one of which outstripped the other. Their velocity varied between 0 and 2600 m/sec. During the first stages of motion of the cracks, there is observed a coordination of the velocities of their propagation which disappears at later stages. A fast propagation of the cracks with velocities of 3000 m/sec is then observed. However, periods of slow growth of the cracks (100-300 m/sec) and sometimes a complete cessation of motion lasting up to 10^{-5} sec are not excluded. The observed synchronous

ACCESSION NR: AR4036260

velocity change is attributed to the dynamic nature of the loading. The pulsed application of the load creates in the crushed material an elastic wave which propagates throughout the entire volume of the solid and which is capable of affecting many cracks simultaneously to a comparable degree, giving them an additional velocity or slowing them down. In the case of a quasi-stationary process, however, when the velocity of the crack is considerably smaller than that of the elastic waves, the fracture is selective and becomes localized on the most active crack. A study of the kinetics of fracture of stalinite revealed the ability of most of the cracks to branch simultaneously, the major part played in the development of the branching process by the internal strain of the body being crushed is noted. L. Gordiyenko.

DATE ACQ: 17Apr64 SUB CODE: ML ENCL: 00

3/3
Card

FINKEL', V.M.; KUTKIN, I.A.; SAVEL'YEV, A.M.; ZRAYCHENKO, V.A.; ZUYEV, L.B.; KOSITSINA, V.K.

Kinetics of the propagation of cracks in bismuth single crystals. Kristallografiia 8 no.5:752-757 S-O '63. (MIRA 16:10)

1. Sibirskiy metallurgicheskiy institut im. S.Ordzhonikidze.

L 18511-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JW

ACCESSION NR: AP3001702 S/0126/63/015/005/0754/0764

AUTHORS: Finkel', V. M.; Kutkin, I. A.; Belorukov, V. F. 59 58

TITLE: Branching of cracks in steel 19

SOURCE: Fizika metallov i metallovedeniye, v. 15, no. 5, 1963, 754-764

TOPIC TAGS: crack in steel, crack branching

ABSTRACT: The formation of crack branching in steel has been photographed by a motion picture camera in order to study kinetics of the process and to investigate microscopically the progress of cracking in the shrinkage zone. Oil-hardened samples of steels ShKh-15 and 85KhV were used and a great variety in branching types was observed (see enclosure). The measurements of crack progress showed that high velocity of crack formation does not necessarily produce branching. It is assumed that the mechanism of branching is based on the magnitude and distribution of residual stresses in the adjacent regions. Tensile forces acting toward the crack from the internal stress field break the advance of the crack, tending to change its trajectory (determined by external tension and sample configuration).

Card 1/12

L 18511-63

ACCESSION NR: AP3001702

Certain portions of steel at the crack front yield under the action of these internal forces, and branching results. Orig. art. has: 7 figures

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)

SUBMITTED: 26Jul62	DATE ACQ: 11Jul63	ENCL: 01
SUB CODE: ML	NO REF SOV: 003	OTHER: 003

Card 2/2

FINKEL', V.M.; SAVEL'YEV, A.M.; KUTKIN, I.A.; KUROCHKIN, A.F.

Investigating the characteristics of failure in transformer steel. Fiz. met. i metalloved. 15 no.5:781-784 My '63. (MIRA 16:8)

1. Sibirskiy metallurgicheskiy institut im. Ordzhonikidze, Novokuznetsk.

(Steel--Metallography)
(Dislocations in metals)

L 11417-63 BDS

S/032/63/029/005/013/022

AUTHORS: Finkel', V. M. Kutkin, I. A. and Krotenok, P. I. 50

TITLE: On the kinetics of shock testing of metals using high-speed motion pictures 14

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 5, 1963, 593-595

TEXT: Destruction by shock created by explosion of an electric detonator was recorded at rates of 60,000 and 120,000 frames/second. Upon contact of the hammer the object at once begins to buckle; no traces of fracture are observed; presumably plastic deformation is spreading during this lag period. Then a bright band appears, indicating localized deformation; the fissure is propagated on this band simultaneously with the propagation of the band itself and at about the same rate. Two types of plastic deformation were established; very intense in the localized zone and much less intense elsewhere. Existing limitations, which can be eliminated, prevent determination of impact ductility by this method as described; it does have the value of introducing new characteristics of strength: lag of failure, velocity of the plastic wave and rate of propagation of the fissure. There are three figures.

ASSOCIATION: Sibirskiy metallurgicheskiy institut im. S. Ordzhonikidze (Siberian Metallurgical Institute imeni S. Ordzhonikidze)

Card 1/1 ja/dk

FINKEL', V.M.; KUTKIN, I.A.

Methods of rapid motion-picture investigation of the growth of cracks in some materials. Zav. lab. 29 no.9:1113-1118 '63.
(MIRA 17:1)

1. Sibirskiy metallurgicheskiy institut imeni S. Ordzhonikidze.

FINKEL', V.M.; MUTKIN, I.A.

Using the method of high-speed motion-picture photography in studying the growth of cracks in solids. Usp.nauch.fot. 9:231-235 '64. (MIRA 18:11)

FINKEL', V.M.; KUTKIN, I.A.

Propagation of cracks in certain single crystals.
Kristallografiia 9 no.2:314-319 Mr-Ap'64. (MIRA 17:5)

1. Sibirskiy metallurgicheskiy institut imeni Ordzhonikidze.

[redacted], I.A.; [redacted], V.F.

[redacted]

[redacted]

[redacted] Microbiology and Epidemiology Institute.

FINKEL', V.M., kand.fiz.-matem.nauk; FUTMAN, I.A., inzh.; ZUYEV, L.B., inzh.

Growth and branching of cracks in glass. Stek. i ker. 23 no.1: 18-23 Ja '66. (MIRA 19:1)

1. Sibirskiy metallurgicheskiy institut.

SHATSKIKH, M.I.; KUTKIN, S.F.; SOKOLOV, A.N., kandidat tekhnicheskikh nauk, redaktor.

[Preparation of molding and core mixtures in foundry work] Prigotovlenie formovochnykh i sterzhnevykh smesei v liteinom proizvodstve. Leningrad, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry [Leningradskoe otd-nie] 1953. 179 p. (MLRA 7:1)
(Founding)

SHATSKIKH, Mikhail Ivanovich; KUTKIN, Semen Fedorovich; PLATONOV, P.M., inzhener, retsenzent; [illegible], I.A., inzhenr, redaktor; SOKOLOVA, L.V., tekhnicheskiy redaktor

[Sand mixer] Zemledel. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 131 p. (MLRA 9:7)
(Foundry machinery and supplies)
(Sand foundry)

VEYKHER, A.A.; KULTYSHEV, N.P.; KURBAKO, Ye.P.; KUTKIN, S.F.; LEVITSKAYA, D.N.; MARKOVA, T.S.; TROITSKAYA, N.I.; URBANOVSKAYA, M.A.; KHAUSTOV, I.V.; LIOGEN'KIY, S.Ya.; NEMANOVA, G.F., red.izd-va; GUROVA, O.A., tekhn. red.

[Prospecting methods and the evaluation of molding materials] Metodika razvedki i otsenki mestorozhdenii formovochnykh materialov; sbornik materialov. Moskva, Gosgeoltekhizdat, 1963. 195 p. (MIRA 17:3)

KUTKIN, V.

Circuit for automatic stopping of the "El'fa-10" magnetic tape recorder. Radio no.10:24 O '61. (MIRA 14:10)
(Magnetic recorders and recording)

KUT'KO, L.F.

Applying accelerated drying for determining the degree of moisture in sandy and sandy-loam soils. Pochvovedenie no.6:108-111 Je '57.
(MLRA 10:9)

1. Ukrainskaya nauchno-issledovatel'skay stantsiya vinogradarstva i osvoyeniya peskov.

(Soil moisture)

KUT'KO, L.F.; MELINIK, M.[illegible]

Effect of fertilizers on the number of [illegible]
and grape yields. Agrobiologiia no.2:[illegible] Mar-Apr '54.
(MLRA 7:6)

1. Nizhnedneprovskaya nauchno-[illegible]
[illegible]

Kutko P.S.

25(2) PHASE I BOOK EXPLOITATION SOV/3092

Vasil'yev, Vladimir Sergeyevich, and Petr Stanislavovich Kutko

Stanki i pribory dlya dinamicheskoy balansirovki (Machines and Instruments for Dynamic Balancing) Moscow, Mashgiz, 1959. 166 p. Errata slip inserted. 5,500 copies printed

Reviewer: B.L. Boguslavskiy, Professor; Ed.: Sh. Ya. Livshits, Engineer; Ed. of Publishing House: N.A. Ivanova; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Metalworking and Instrument Making (Mashgiz): R.D. Beyzel'man, Engineer.

PURPOSE: This book is intended for operators of balancing machines and designers.

COVERAGE: The book deals with the construction, operating principles, and sequence of operations of modern balancing machines and instruments. The design of the more important elements of balancing equipment is discussed. No personalities are mentioned. There are 16 references, all Soviet.

Card 1/5

[redacted]

[redacted] -- "Investigation of the Effect of [redacted] on the Precision and Sensitivity of Universal Testing Machines." Dissertation for the Moscow Machine-Tool and Tool Institute. V. V. Polin. Dissertation for the Degree of Candidate in Technical Sciences.

[redacted]: Vestnik Mashinostroyeniya, January-December 1952.

L 10572-66 EWT(1)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JW/GG
ACC NR: AP5025393 SOURCE CODE: UR/0181/65/007/010/3102/3104

AUTHOR: Zvyagin, A. I.; Yeremenko, V. V.; Kut'ko, V. I.

ORG: Physicotechnical Institute of Low Temperatures AN UkrSSR, Kharkov (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Infrared absorption spectra of antiferromagnetic crystals in the $CoF_{2(1-x)}$-MnF_{2x} system

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3102-3104

TOPIC TAGS: cobalt compound, manganese compound, fluoride, solid solution, single crystal, crystal theory, antiferromagnetic material, IR spectrum, absorption spectrum

ABSTRACT: The authors study the infrared absorption spectra of single crystal specimens containing 100, 90, 10 and 5% CoF_2 in systems where cobaltous and manganous fluorides form solid solutions. The spectral measurements were made in the 15-300°K range. The IR spectra of single crystal specimens of mixed composition are very similar to those of pure CoF_2. The absorption intensity in the 100-200 cm^{-1} range decreases with a reduction in cobalt concentration without any noticeable deviation from Beer law, and may be compensated by an appropriate increase in the thickness of the specimen. The differences between the spectra of mixed specimens and those of pure cobaltous fluoride were a broadening of the bands in mixed specimens apparently

Card 1/2

L 10572-66

ACC NR: AP5025393

due to some irregularity in composition, and a considerable shift in the spectrum toward the low frequency region. When the crystals were cooled below the Néel point, an anomalous reduction was observed in the width of the Co^{2+} bands in both pure and mixed specimens, as well as a sharp shift in the frequency of these bands. However, the shift in pure CoF_2 is toward the longer waves, while the bands are shifted toward the shorter wave region in crystals with a high MnF_2 content. A theoretical explanation is given for this phenomenon based on the difference in the ground state exchange energies for the two types of crystals. In conclusion, we take this occasion to express our gratitude to N. N. Mikhaylov and S. V. Petrov who graciously furnished the single crystal specimens for the present study. Orig. art. has: 2 figures.

SUB CODE: 20,07/ SUBM DATE: 19Apr65/ ORIG REF: 008/ OTH REF: 006

HW

Card 2/2

KUT'KOV, A. A.: Master Tech Sci (diss) -- "Investigation of the effect of physicochemical and mechanical parameters of oils and greases on the static moment of friction of ball bearings". Novocherkassk, 1959. 14 pp (Min Higher Educ USSR, Novocherkassk Order of Labor Red Banner Polytech Inst im S. Ordzhonikidze), 150 copies (KL, No 4, 1959, 126)

KUT'KOV, A.A., inzh.

Equipment for determining and automatic recording of the moment of starting for antifriction bearings. Izv. vys. uchseb.zav.; prib. no.2:63-68 '58. (MIRA 11:7)

1.Taganrogskiy radiotekhnicheskiy institut.
(Testing machines) (Bearings (Machinery)--Testing)

AUTHOR: Kut'kov, A.A. [illegible]

TITLE: Installation for Determining the Torque in Anti-friction Bearings (Ustanovka dlya opredeleniya momenta troganiya podshipnikov kacheniya)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr [illegible], pp [illegible] (USSR)

ABSTRACT: For measuring the torque in antifriction bearings, a pendulum device is used (Figure 1). In the Taganrogskiy radiotekhnicheskiy institut (Taganrog Radiotechnical Institute) a more efficient device has been developed (Figure 2). The bearing is fastened in the holder (7) (Figure 2). If the inner ring of the bearing moves, a beam of light falls on a photo-element which breaks an electric circuit. A counter indicates this position. The new device needs no pendulum, it is very sensitive, and its readings are very regular. There are 4 diagrams and 4 Soviet references.

ASSOCIATION: Taganrogskiy radiotekhnicheskiy institut (Taganrog Radiotechnical Institute)

Card 1/1

KUT'KOV, A.A., prepodavatel'

Experimental investigation of static moment of friction.
Izv. vys. uchab. zav.; mashinostr. no.10:107-113 '58.
(MIRA 12:11)

1.Taganrogskiy radiotekhnicheskiy institut.
(Friction)

KUT'KOV, A.A., inzh.

Static friction moment of antifriction bearings. Izv.vys. ucheb.zav.; mashinostr. no.2:75-83 '59. (MIRA 13:3)

1. Taganrogskiy radiotekhnicheskiy institut.
(Bearings (Machinery)) (Friction)

AUTHOR: Kut'kov, A.A. 30V/122-59-3-41/42

TITLE: Investigation of the Effect of the Physical, Chemical and Mechanical Properties of Oils and Lubricants on the Static Friction Torque of Ball-Bearings (Issledovaniye vliyaniya fiziko-khimicheskikh i mekhanicheskikh parametrov masel i smazok na staticheskiy moment treniya sharikopodshipnikov)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 3, p 88 (USSR)

ABSTRACT: Author's summary of a dissertation, submitted to the Novocherkassk Polytechnic Institute (Novocherkasskiy Politekhnicheskiy Institut) "Ordena Trudovogo Krasnogo Znameni i Imeni S.Ordzhonikidze", for the attainment of the Degree of Candidate of Technical Sciences.
On the basis of experimental studies, the existing recommendations for the application of lubricants have been verified and certain ranges have received fresh recommendation. Empirical expressions are proposed from which, by taking concrete conditions into account, such as the type of lubricant, the temperature and the load,

Card 1/2

SOV/122-59-3-41/42

Investigation of the Effect of the Physical, Chemichal and Mechanical Properties of Oils and Lubricants on the Static Friction Torque of Ball-Bearings

the static friction torque of rolling bearings can be determined for some of the most frequently occurring instances. The mechanism of the formation of the static friction torque in lubricated ball bearings is explained.

Card 2/2

25 (1), 28 (2) SOV/115-59-10-5/29

AUTHOR: Kut'kov, A.A.

TITLE: Measuring the Thickness of Lubrications Layers

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 10, pp 11-13 (USSR)

ABSTRACT: This is the description of a device constructed by the author at the Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute) to measure the thickness and the strength of a lubrication layer. The device is based on the following principle: if between two hard blocks a metallic rod is placed (Fig 1a) one of its butts forming the working part of the device, the formation of a lubrication layer between the block and the butt, causes the deformation of the rod when pressure is applied (Fig 1b). Measuring of this deformation permits evaluation of the thickness and the strength of the layer. For this purpose electric high ohmage strain gages are used. A detailed description of the device is given in the article. There are 2 diagrams, 1 graph and 4 Soviet references.

Card 1/1

S/191/60/000/012/010/016
B020/B116

11.2320

AUTHOR: Kut'kov, A. A.

TITLE: Improvement of Physicomechanical Characteristics of Thermoplastic Parts

PERIODICAL: Plasticheskiye massy, 1960, No. 12, p. 57

TEXT: The principal shortcomings in casting of large, thick-walled parts, as well as of parts of complicated shape from thermoplasts are: porosity, sponginess, and incomplete filling of the mold. At the laboratoriya plastmass, Novocherkasskogo politekhnicheskogo instituta (Plastics Laboratory of the Novocherkassk Polytechnic Institute), experiments were made with a casting method in the following way: In the part of the mold most remote from the pouring-in hole an opening was drilled into which a tube was introduced which was connected with a vacuum pump by means of a hose (Fig.1). The suction opening was covered inside with a fine net. While feeding the mold with the molten thermoplast the vacuum pump sucked off the air and the volatile components. By this method, caprone samples were cast and tested for tension, compression, and impact strength.

Card 1/2

Improvement of Physicomechanical Characteristics of Thermoplastic Parts

S/191/60/000/012/010/016
B020/B066

Results are summarized in a small table. The method suggested has the following advantages: 1) Higher packing density of molecules (Fig.2) which guarantees better mechanical properties of products, 2) quicker filling of the mold, 3) no air-filled cavities in the cast part, and 4) reduced oxidation of the upper layers of the part. There are 2 figures and 6 references: 3 Soviet, 1 British, and 2 German.

Card 2/2

S/191/60/000/012/013/016
B020/B066

15.8500

AUTHORS: Bondarev, P. G., Zusmanovskaya, L. L., Kut'kov, A. A., Litvinova, L. M., Pyatnitskiy, A. A.

TITLE: Mechanical Properties of Caprone at Low Temperatures

PERIODICAL: Plasticheskiye massy, 1960, No. 12, pp. 43 - 45

TEXT: To study the effect of low temperatures on the mechanical properties of polyamides, the authors made a number of mechanical tests on samples cooled down to -60°C. Samples from "B" ("B") caprone resin were tested which had been cast in an autoclave, in a hand-operated injection press, and in a press with hydraulic drive, since the type of casting device applied is known to have a certain influence on the mechanical properties of products. Besides, different casting methods and heat treatments were used. In the low-temperature tests, five stages were distinguished: 1) Temperature-change stability test according to ГОСТ 928-56 (GOST 928-56), 2) test of samples cooled down to -50°C, 3) investigation of the reversibility of original mechanical properties of samples which had been briefly cooled and then brought to normal

Mechanical Properties of Caprone at Low Temperatures

S/191/60/000/012/013/016
B020/B066

temperature, 4) determination of mechanical properties of samples which had been subjected to several cycles of temperature change in the range of from + 20 to -60°C, and 5) determination of mechanical properties of samples kept at -60°C for 100 hours. The tests for tension, compression, static bending, and impact strength were made according to GOST 4649-55, 4651-49, 4648-56, and 4647-55 (for normal temperatures). The limits of tensile, compressive and static flexural strength were determined on a 50-t tearing machine "Amsler". Impact strength was tested by means of a pendulum hammer (GOST 4647-55). The samples were cooled in an MPS-500 (MPS-500) device of the firm "Nema". All caprone samples stood the temperature-change test according to GOST 928-56. The tearing strength increased slightly at low temperatures (up to -60°C) with falling temperature, the specific impact strength dropped appreciably, the limit of compressive strength increased slightly, and the limit of static flexural strength dropped considerably. The mechanical properties of caprone regenerated at normal temperature, irrespective of the fact whether it had been kept at low temperatures for a short or a long period, once or repeatedly. In the impact test, uncooled samples do not break but bend and crack between two supports (Fig.1); "frozen" samples

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Mechanical Properties of Caprone at Low Temperatures

S/191/60/000/012/013/016
B020/B066

are distinguished by high brittleness (Fig.2), and samples which had been cooled and then brought back to normal temperautre behave like uncooled samples (Fig.3). Maximum tearing strength at low temperatures is observed in samples which had been previously treated with paraffin in a vapor bath, maximum impact strength in samples which had not been treated with water or vapor. There are 3 figures, 1 table, and 4 references: 3 Soviet and 1 German.

Card 3/3

15-8360

AUTHORS: Kuzminov A. A. [illegible]

TITLE: Lubricant layers on the surface of [illegible]

PERIODICAL: [illegible]

TEXT: Based on the use of polyamide resins, such as polycaprol actam (capron), nylon (nylon), polyamide 68, AK-7, AK-5, [illegible] urethane rubber SKU-7 it is also possible to [illegible] the following problems: 1) proof of the [illegible] polar activity on the surface of the polymer [illegible] electron diffraction studies. 2) Examination of the causes of molecular disorientation on the surface of the polymer. 3) Determination of the carrying capacity of the lubricant layer on the polymer surface. The orientation of the lubricant layer on the surface was proved by the EM-3 (EM-3) electron microscope. Copolymer 60-40 and polycaprolactam were used for the study. Commercial oil 20 (spindle oil 3), and commercial oil 45 [illegible] oil C (S) were used as lubricants. The oils contained [illegible] of oleic acid. The electron diffraction pictures were taken at 30-40°C. Polymer films were obtained

Card 1/3

25750

Lubricant layers on the surface

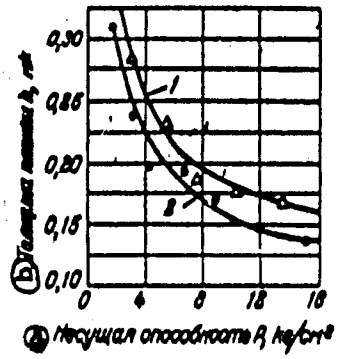
by the following method: Copolymer (C 40 [illegible] and a large [illegible] the surface of water. [illegible] deposited [illegible] the water by a slow [illegible] [illegible] [illegible] partial [illegible] elektronen (Diffraction of Electrons). [illegible] AS USSR [illegible] Exposure in the electron microscope at 30-40°C showed [illegible] without point reflexes for the polymer film without [illegible] polymer films with oil layers showed point reflexes which [illegible] orientation of the molecules in the boundary layer. The interval [illegible] for the electron diffraction patterns was calculated from the equation rd = Lλ. It proved to be in agreement with the data of Ref. 1. A 10-day storage of the sample in a chamber free from dust showed that the point reflexes did not disappear, i.e., the lubricant was not [illegible] by the resin. The point reflexes disappeared on heating and reorientation set in. At 30-40°C the electron diffraction pattern corresponds to a crystalline substance, and at 90°C it changes into that of a [illegible]. The critical temperature [illegible] which discontinuity sets in will be found to correspond to the yield point of the polymer concerned. The carrying capacity was determined by A. A. Kutukova and [illegible] keys.

Card 2/3

Lubricant layers on the surface...

tekhnika, 10, 11 (1959)). Results are shown in Fig. 4. G. I. Fuks and R. M. Matveyevskiy are mentioned. There are 4 figures and 23 references: 20 Soviet-bloc and 3 non-Soviet-bloc.

Fig. 4: Carrying capacity of lubricant layers on the surface of polycaprolactam. Legend: 1) Commercial oil 45 (machine oil 3); 2) commercial oil 20 (spindle oil 3); a) carrying capacity P, kg/cm^2; b) film thickness h, μ.



Card 3/3

30308

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E194/E119

11 9000

AUTHOR: Kut'kov, A.A.

TITLE: An instrument for experimental verification of the hydrodynamic theory of lubrication on rolling

PERIODICAL: Izmeritel'naya tekhnika, no.8, 1961, 18-19

TEXT: For the purpose of making an experimental check on the theory of hydrodynamic lubrication of rolling bearings, the author has developed an instrument which can make direct measurements of oil film thickness in a working bearing as function of lubricant viscosity, load, speed etc. The instrument is based on the assumption that in a rolling bearing a hydrodynamic flow of lubricant is set up between the rolling elements and the races which separate them. Consequently, if the outer race is fixed and a radial load is applied to the bearing then at certain speeds the lubricant flow will move the inner race from its initial position. The instrument overcomes the effects of fit on the outer race by having on a single shaft two radial thrust bearings on which the outer races can slide in cups. The shaft is rotated and lubricant is applied, setting up a flow which causes

Card 1/2

30308

An instrument for experimental ... S/115/61/000/008/003/009
E194/E119

compressive stresses in the shaft. The thickness and strength of the oil film may be determined from measurements of shaft strain. Two strain gauge bridges are used supplied at audio frequency and readings are taken with an oscillograph. Provision is made to compensate for temperature changes in the shaft. The main strain gauges are fixed on the shaft in such a way that they measure only normal stresses. The bridge reading was found to depend only on hydrodynamic pressure and to be uninfluenced by temperatures; the instrument is considered fully suitable for its purpose. There is 1 figure.

Card 2/2

'KUT'KOV, A.A.

Conditions and media for thermal treatment of polyamides. Plast. massy no.11:23-27 '61. (MIRA 14:10)
(Polyamides)

41920

S/191/62/000/011/019/019
B101/B186

AUTHORS: Avdeyev, D. T., Ivanchenko, A. P., Dumchus, N. V., Kut'kov, A. A.

TITLE: Effect of some technological factors on the thickness of polyamide coating

PERIODICAL: Plasticheskiye massy, no. 11, 1962, 68-69

TEXT: Technical conditions for the economical coating of rotating parts with thin polyamide coats by applying small caprone granules, as suggested by A. A. Kut'kov, have been investigated. Steel rollers made from steel of grade 45 and ground to class 6 surface quality were chucked in a turning lathe, caused to rotate, and heated to 260-340°C. The rollers, of 18 mm diameter and 50 mm length, were heated by a nichrome coil and pressure-coated with a caprone granule applied to the roller under pressures from 4 to 6.8 kg/cm^2. The pressure was measured by a simple spring dynamometer. The following factors were studied: the effect of the temperature of the part (roller) at the moment of applying the coating, its speed of rotation, the pressure occurring on the surface of

Card 1/2

Effect of some technological ...

the granule, and the longitudinal feed rate. Optimum feed rate was achieved at 4 mm per revolution, equaling the width of the granule at 285°C, 180 rpm and 4 kg/cm^2 pressure on the granule. Feed rates of 1.5, 3, 4 and 6 mm per revolution were tested. Superposed caprone layers were found to deteriorate the quality of coating. Optimum temperature range was 275-320°C. The thickness of the coating increased with increasing temperatures of the part (roller). It was 30 μ at 5 kg/cm^2 and 285°C, and 45 μ at 340°C. The thickness of coating decreased with increasing pressure, being only 20 μ at 285°C and 7 kg/cm^2. Repeated passage of the granule over the same roller surface should be avoided. This method will replace gas-flame and turbulence spraying of polyamide powder, as hitherto adopted for resin-coating. There are 4 figures.

Card 2/2

AVDEYEV, D. T.; IVANCHENKO, A. P.; DUMCHUS, N. V.; KUT'KOV, A. A.

Effect of certain technological factors on the thickness of a polyamide layer. Plast. massy no.11:68-69 '62. (MIRA 16:1)

(Protective coatings) (Polyamides)

ACCESSION NR: AP4043325 S/0191/64/000/008/0031/0033

AUTHOR: Kut'kov, A. A.; Avdeyev, D. T.

TITLE: Mechanical and frictional properties of polyamide and polyethylene coatings

SOURCE: Plasticheskiye massy*, no. 8, 1964, 31-33

TOPIC TAGS: resin, coating, polyamide, polyethylene, Kapron B, resin P-68, flame spraying, fluidized-bed spraying, shear, impact strength, adheziometer, abrading machine, bending strength, polyamide coating, polyethylene coating, resin coating, lubrication, polymer film

ABSTRACT: The mechanical properties of polyamide (Kapron B, resin P-68) and polyethylene coatings, as well as their lubricating properties and abrasive strength, were investigated in relation to the method of application (flame-spraying and fluidized-bed spraying) and the structure of the material. Flame-spraying did not give stable adhesion of the films to metal; the method of fluidized-bed spraying resulted in higher adhesion and higher, more stable, values for shear, bending and impact strength. Thermal treatment caused the structure of polyamide coatings to change and affected their mechanical properties. Coatings cooled in water with an amorphous structure were more elastic and did not fail even under high distortion stresses. The lubricating properties were tested on an

Card 1/2

ACCESSION NR: AP4043325

abrading machine designed by Zaytsev. The apparatus is described and illustrated. A graph of the coefficient of friction plotted against load showed that with an increase in the load, the stability of the moment of friction decreases and discontinuous variations become frequent in all samples. The most stable moment of friction was obtained with Kapron heat-treated in oil. Sharp discontinuous variations in the moment of friction were found for polyethylene films. Kapron coatings, regardless of the cooling and heat-treating methods, endured loads up to 90 kg/cm^2, after which peeling and failure of the film set in. A diagram showing the variation in the coefficient of friction with time indicated sufficient stability for all samples coated with Kapron. Polyethylene coatings can be recommended for machine parts subjected to impact stress, but they are unsuitable under high distortion stress and their adhesion to metal is low. Kapron films can be used as lubricating agents at small loads (up to 20 kg/cm^2) and at low shear rates (up to 0.2 m/sec.) in case of dry abrasion. Orig. art. has: 4 figures.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: OC, MT NO REF SOV: 002 OTHER: 000

Card 2/2

L 13771-65 EPA(s)-2/EWT(m)/EWP(w)/EPF(c)/EPF(n)-2/EWA(d)/EPR/T/EWP(t)/EWP(b)
Pr-4/Ps-4/Pt-10/Pu-4 JD/WW/JG/DJ
ACCESSION NR: AP4049162 S/0065/64/000/011/0064/0067

AUTHOR: Kut'kov, A. A.

TITLE: Antifrictional properties of aluminum soaps in thin layers

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 11, 1964, 64-67

TOPIC TAGS: aluminum soap, aluminum oleate, lubrication, aluminum soap lubrication, oleic acid, aluminum hydroxide film, oleic acid water emulsion

ABSTRACT: The antifrictional properties of aluminum soaps in thin films were investigated on a butt-friction machine in which the friction took place between an aluminum disk and the end face of a rotating aluminum cylinder. Lubrication was achieved by the use of treated aluminum powder, a mixture of untreated aluminum powder and oleic acid, pure oleic acid, or oleic-acid emulsion with 10% water. The treatment of the powder consisted in coating it with aluminum oleate films of varying thickness by first boiling the powder with water to produce a layer of aluminum hydroxide on the powder grains and then heating it in oleic acid to convert the hydroxide into soap.

Card 1/2